

# CHARLOTTE HARBOR CONFERENCE

*"Focus in 2002-2003"  
Program*

*E.D. Estevez, Organizer*

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Martin Selby Science Education Center*

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# Differences In Long-Term Peace River Water Quality Data For The Periods 1976-1990 And 1996-2002

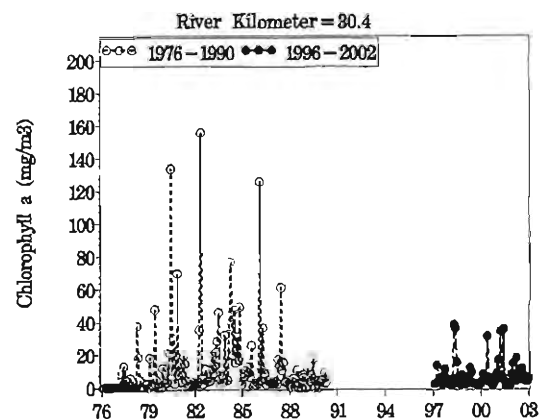
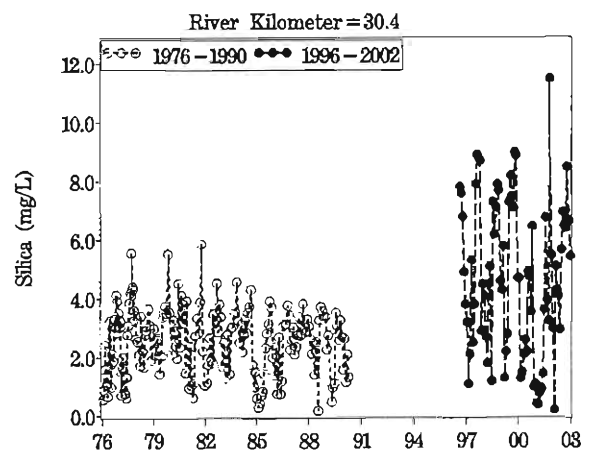
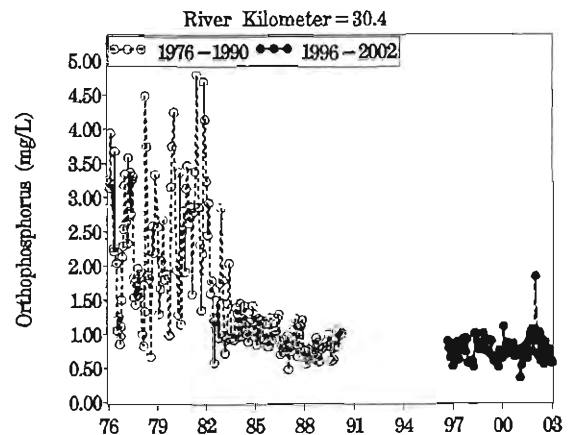
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On December 10, 1975, the Southwest Florida Water Management District (SWFWMD) issued the consumptive use permit #7500016 for the Peace River Regional Water Supply Facility. In conjunction with this agreement, a comprehensive Hydrobiological Monitoring Program (HBMP), was set forth to assess the responses of various physical, chemical and biological characteristics of the Charlotte Harbor estuary to changes in Peace River flow. The program was designed to evaluate the impacts and significance of natural salinity changes on the aquatic fauna and flora in upper Charlotte Harbor, and to determine if freshwater withdrawals by the Peace River Regional Water Supply Facility could be shown to alter these patterns. Comparisons are made between spatially collected long-term data collected during the period 1976-1990 with analogous values measured over the period 1996-2002 in the lower Peace River/Upper Charlotte Harbor estuarine system.

- Both inorganic nitrite + nitrate and total Kjeldahl nitrogen concentrations indicate very similar seasonal patterns and levels of annual variation over the entire twenty-seven years of monitoring. As expected, spatially inorganic nitrogen concentrations markedly increase moving upstream.
- Most of the apparent marked declines in phosphorous concentrations that have occurred in the lower Peace River/Upper Charlotte Harbor estuary took place prior 1985. Since that time inorganic phosphorus concentrations have shown fairly consistent seasonal patterns over a comparably narrow range of variation.
- Plots clearly show that reactive silica concentrations have both increased and exhibit a much wider range of variation during the recent monitoring period when compared to data collected during the 1976-1990 period. Silica levels are much higher at the upstream sampling sites, and show a strong seasonal pattern in response.
- There has been a marked decline in the very high chlorophyll *a* concentrations "blooms" that commonly occurred during the late 70s and early 80s throughout the lower Peace River/Upper Charlotte Harbor estuarine system.



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